but has taken this morning water, and is being given Urotropin.

Sept. 15th. Patient has been removed to Trinity Hospital. The operation wound has healed per primam. Considerable broken down brain tissue has been extruded through the wound of exit, together with a little cerebro-spinal fluid. There is still slight paresis in the left side. Babinski on left; reflexes depressed.

Patient is conscious, presents no signs of meningitis, but has some irregular fever. Vision in the left eye, good. Dr. Frederick, occulist, reported a thrombosis of a cavernous sinus on the right side. This eye is of course blind. Patient has constantly been given large doses of Urotropin, the dosage at first being 120 grains a day, later on, more. The fever has gradually subsided, and it is apparent that any local meningitis that may have been present has cleared up. From this time on she made an uneventful recovery, with the exception that a sinus presented at the wound of exit of the bullet. About a month after her first operation, the skull was explored in this region. Nitrous oxide gas was used. A number of pieces of dead bone were removed. This wound has since healed.

THE PRESENT STATUS OF THE OSMIC ACID TREATMENT OF NEURALGIA.

By T. C. McCLEAVE, M. D., Berkeley.

Two years ago I reported before this Society a case of trigeminal neuralgia treated by intraneural injections of osmic acid (1). Murphy (2) had just previously (1903) redirected attention to this method of treatment as advocated in 1899 by Bennett of London (3), reporting some seven cases, and my case was, I believe, the first so treated on this Coast.

Since then the lapse of time and the reports of additional cases, together with the experimental work of Murphy (4) and, more recently, Eastman (5), have afforded opportunity for somewhat adequately estimating the value of the operation. Reviewing briefly, the history of my case was that of a woman fifty-six years old, who had suffered for thirteen years with bilateral tic douloureux of the most severe type, the paroxysms being, however, more acute upon the right side. The occurrence of the disease bilaterally was ascribed to a spinal origin, as certain disturbances of the reflexes were also observed, a point of considerable interest in estimating the effect of local treatment.

This patient had been treated by numerous able physicians, all the usual medical measures having been tried, and two nerve-cutting operations having been done, with but temporary relief. She came under my care December 20, 1903. Her condition at that time was distressing in the extreme. She was weak and emaciated from inability to eat and loss of sleep, and tortured by pain so severe as to require almost lethal doses of morphin to control it.

I first operated upon her on January 13, 1904, injecting the nerves on the right side in the usual manner. The operation was followed by almost immediate and complete anesthesia of the area supplied by the supraorbital branch, but prompt return of pain in the other branches. Second operation January 29, 1904. Through a larger incision it was then seen that the infraorbital nerve injected at the first operation was but one of a number emerging through a bony slit and uniting to form a tortuous mass the size of a small marble, from which numerous larger and smaller nerves radiated downward into the tissues of the cheek. These were injected and cut and the mass removed. A trephine opening was then made in the ramus of the jaw, and through this the greatly hypertrophied inferior dental nerve was injected distally and proximally and about three-quarters of an inch of the nerve trunk was excised. This operation was followed by practical freedom from pain on that side for almost a year, except for some local irritability in the cheek where some small branch had probably escaped attention. Severe paroxysms affecting chiefly the infraorbital branch, then recurred.

A third operation was done on April 26, 1905, the infra and supraorbital and the inferior dental branches on the left side being exposed, as described above, and injected. The right cheek was also again exposed and several small nerves found to have regenerated, which were injected. This operation gave relief for some few months only, when the paroxysms recurred, very much reduced, however, in intensity and frequency.

As a result of the three operations the patient has been afforded long periods of relief, and a considerable mitigation in the severity of her now infrequent paroxysms as compared with the pain previously experienced almost continuously. The improvement in her general condition which followed the second operation has been maintained to a large degree, and she is now in fair health. It is therefore fair to say that the osmic acid method accomplished far more in this case than any of the other forms of treatment to which the patient had been subjected. (Note: August 1, 1906. The attacks of pain are becoming more frequent, but not quite so severe as formerly. Complete recurrence is anticipated.)

Dr. Sherman and Dr. Barbat have each treated a number of cases with osmic acid, and I am indebted to them for permission to refer to their results.

Dr. Sherman's cases.—Total number, 6 (trigeminal neuralgia).

No. 1. Operated on 15 months ago; recent recurrence (trigeminal).

No. 2. Operated on 9 months ago; no recurrence (trigeminal).

No. 3. Operated on 6 months ago; no recurrence (trigeminal).

No. 4. Operated on 6 months ago; no recurrence (trigeminal).

No. 5. Operated on 3 months ago; no recurrence (trigeminal).

No. 6. A recent case, with relief from pain after three operations (trigeminal).

Dr. Barbat's cases.—Total number (trigeminal, 3; intercostal, 3).

No. 1. Operated on 15 months ago; no recurrence (trigeminal).

No. 2. Operated on 8 months ago; no recurrence (trigeminal).

No. 3. Operated on 8 months ago; recurrence probably due to pressure of aortic aneurism (intercostal, 3 nerves).

No. 4. Operated on 8 months ago; no recurrence (intercostal).

No. 5. Operated on 7 months ago; no recurrence (intercostal).

No. 6. Operated on 2½ months ago; no recurrence (trigeminal).

Bennett (3), Murphy (2-4), Wright (6), and recently Eastman (5), have reported a considerable

number of cases of neuralgias of various nerves treated by the osmic acid method.' Their results have not of course been uniform, but on the whole a very large percentage of the patients have been relieved of their pain for long periods of time, the relief in many cases being apparently of longer duration than nerve cutting or stretching operations might have been expected to afford, these measures having previously failed in many instances.

Murphy (4) and Eastman (5) have each reported the results of experimental investigations as to the effect of osmic acid on nerve tissues, which may be briefly summarized by stating that the changes observed were very slight, except for the disintegration of the perineural fat and fatty myelin substance when brought in contact with the acid. No progressive degenerative changes were noted, and only slight inflammatory processes in the nerve fibres themselves. The experimental findings then offer no reason for theoretically considering osmic acid an efficient agent so far as permanency of cure is concerned.

Clinically, however, the results obtained have very largely been excellent, and as the operation is simple and devoid of danger, this method should have the preference over any other until its failure in any given case be demonstrated. The operation can be repeatedly done if necessary. It is of interest that the injection of alcohol about the points of exit of the nerves has recently been said to afford relief of long duration in cases of tic (7).

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A CRITICAL REVIEW—THE OCCURRENCE AND SIGNIFICANCE OF THE BOAS-OPPLER BACILLUS IN THE STOOLS IN CARCINOMA OF THE STOMACH.

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The occurrence and significance of the Boas-Oppler bacillus, also known as the long bacillus and the lactic acid bacillus, in the stomach content in gastric affections has been a subject for discussion and dispute since the original publications by Boas [1] and by Oppler [2] in 1895. On the one hand are many authorities who attach very slight importance to this organism and in whose writings it receives very scant mention; on the other are those who consider it of the greatest importance in the recognition of malignant gastric affections. In the past few years several careful studies of this bacillus have been made and fairly definite conclusions regarding its occurrence in various gastric diseases have been reached. Sick [3] has made an extensive study and comes to the conclusion that the long bacillus cannot be utilized for the early diagnosis of carcinoma of the stomach since it occurs also in other gastric diseases; he considers, however, that it causes lactic acid fermentation only in the presence of an ulcerating carcinoma.

Fricker [4] also finds the long bacillus in gastric diseases other than carcinoma but only in very small numbers and unassociated with lactic acid. In all cases where the condition of diminished or absent hydrochloric acid was associated with disturbed motility (retention) he constantly found a marked increase in the number of lactic acid bacilli associated with considerable quantities of lactic acid. He has also found these bacilli in an oesophageal diverticulum and considers that the normal habitat of the organism is the mouth from whence it gains access to the stomach and intestines, there to multiply when conditions are favorable.

Tabora [5] emphasizes the importance for early diagnosis of finding in the stomach content very small particles of blood clot in which are included large numbers of Boas-Oppler bacilli. It has been shown that these organisms grow best in media smeared with fresh blood, which explains their abundance in the clots. Tabora considers such a finding one of the earliest signs of carcinoma of the lesser curvature.

From these and other studies the conclusion seems fair that the presence in gastric contents of decided numbers of Boas-Oppler bacilli is a point strongly in favor of the diagnosis of carcinoma. Inasmuch as the passage of the stomach tube is sometimes contraindicated or attended with decided difficulties it has been suggested that a microscopical examination of the intestinal flora might aid in the recognition of carcinoma of the stomach.

To R. Schmidt [6] seems to belong the credit for first demonstrating a decided change in the fecal bacteria in a case of gastric carcinoma. In 1903 before the Wiener Medizinischer Gesellschaft he showed slides from a case of gastric hemorrhage where the original diagnosis of ulcer was changed to carcinoma because of the presence in the feces of large numbers of lactic acid bacilli. In 1906 Schmidt [7] published a study of the bacterial flora of the stomach and intestines in various gastric affections, in which he showed that under certain obscure conditions such as are afforded by carcinoma of the stomach it is possible for the Boas-Oppler bacillus to survive in its passage through the intestinal canal and be recognized in the feces both by cultural and staining methods. While cultures are preferable for the demonstration of the organism yet Schmidt considers that after one has had experience, judgment can safely be based on the morphological appearance and staining reactions. He emphasizes the following points: thin bacilli of varying length but predominantly long; without spores and non-motile; Gram positive but often showing partially Gram negative areas.

Extensive studies of film preparations of stools stained by the Gram method have shown that in health and also in most disease conditions the feces are essentially "Gram negative"; that is, aside from the Gram positive cocci very few Gram positive organisms occur. McNeal, Latzer and Kerr [8] in a recent elaborate study of fecal bacteria estimate that normally the Gram negative organisms vary from 63% to 97% of all intestinal bacteria; while the Gram positive bacilli run from 1.4% to 34%. Usually low figures were obtained for the latter